

REMARKS/ARGUMENTS

In the Office Action mailed June 1, 2009, a requirement to elect one of the following inventions was requested, namely:

Group I, claims 1-11, drawn to a glass printing ink or lacquer comprising a bisphenol A epoxy resin, a UV hardening monomer, an amino, hydroxyl, epoxy, acid, anhydride or acrylate-functional resin, and a photoinitiator;

Group II, claims 12-14, drawn to a method of using the glass printing ink or lacquer comprising pretreating a glass or superficially vitreous substrate, mixing a coupling agent into the ink or lacquer, and UV hardening it without a subsequent heat treatment (claim 14);

Group III, claims 12, 13 and 15, drawn to a method of using the glass printing ink or lacquer comprising printing a glass or vitreous substrate with the ink or lacquer without a coupling agent and UV hardening it; and,

Group IV, claims 12, 13 and 16, drawn to a method of using the glass printing ink or lacquer comprising printing a glass or vitreous substrate with the ink or lacquer without a coupling agent, UV hardening and thermally post-treating it.

In addition, Applicant is also required to elect a single species within each of the below listed items to which the claims shall be restricted if no generic claim(s) is finally held to be allowable:

- a) The UV hardening monomers such as the 1,6-hexanediol diacrylate of Claim 7 used in Example 1 as shown in the table on page 17 of the specification.
- b) The amino, hydroxyl, epoxy, acid, anhydride or acrylate-functional resins such as melamine acrylate Nanocyle XP 21/0793 of Example 1.
- c) The photoinitiators such as Derocur 1173-1173C wherein the chemical name and/or structure is revealed.
- d) The ink or lacquer with or without the stabilizer of Claim 9 wherein a species is indicated if present.
- e) The ink or lacquer with or without the co-initiator of Claim 19 wherein a species is designated if present.

Claims 1-16 have been indicated as being generic.

By this reply, Applicant cancels Claim 2, withdraws Claims 12-16, and adds new Claim 17. As such, Claims 1 and 3-17 are pending in this application.

Applicant hereby elects Group I, species a, that pertains to Claims 1, 3-11, and new Claim 17, which are drawn to a glass printing ink or lacquer comprising a bisphenol A epoxy resin, a UV hardening monomer, an amino, hydroxyl, epoxy, acid, anhydride or acrylate-functional resin, and a photoinitiator, as well as the UV hardening monomers such as the 1, 6-hexanediol diacrylate.

Amended Claim 1 is essentially original Claim 2 rewritten in independent form, and new Claim 17 is essentially the same as original Claim 1.

It is noted that resins falling within the range of molecular weight of amended Claim 1 differ from other resins by the fact that they are solid. Due to these molecules, the ink film obtained with the printing ink or the printing lacquer in accordance with the present invention has a matrix formed by the hardened UV curable monomers and discrete, discernable islets form by the resin molecules—appearing in microscopic view similar to pebbles in concrete. In this connection, the hardening of the printing ink is exclusively via the monomers. The epoxy resin molecules are distributed in the matrix and there is no cross linking of resin molecules of the ink layer by cationic curing mechanism.

“Solving” of the resin molecules in the monomers does not seem that there is a change in these molecules, e.g., a change that was comparable to dissolving of salt in water. *Steinmann* discloses liquid epoxy resins only, because their molecular weights are below 600. In support of this, attached are data sheets showing that resins of molecules having a molecular weight below 600 are in the liquid state at room temperature. Also attached is a data sheet or one embodiment of the present invention’s epoxy resin—Araldite 7072 GT—which has a molecular weight of 1283.36 and is solid.

If any charges or fees are required with this communication, the applicant authorizes that such charges or fees may be paid out of our Deposit Account No. 50-0545.

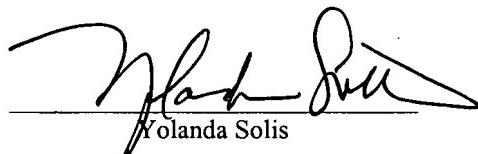
Respectfully submitted,

Dated: September 1, 2009


Joseph M. Kinsella Jr.
Reg. No. 45,743
One of Applicant's Attorneys
(312) 226-1818

CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the United States Patent Postal Service as first class mail in an envelope addressed to: Mail Stop Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on September 1, 2009.


Yolanda Solis

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1,4-Butanediol diglycidyl ether

racemate

InChI: 1S/C10H18O4/c1(3-11-5-9-7-13-9)2-4-12-6-10-8-14-10/h9-10H,1-8H2
InChIKey: SHKUUQIDMUMQQK-UHFFFAOYSA-N

H donor: 0 **cLogP:** 0.48
H acceptor: 4 **cLogS:** 1.056
Rotatable bond: 9 **Polar surface:** 43.52
Stereocenter: 2

Permanent link: <http://www.chemexper.com/search/cas/2425798.html> [Report error\(s\)](#)

Click on a product name to get more information on that compound, on a supplier name to get more information on that supplier.

Supplier	Description	Reference
atomax	1,4-Butanediol diglycidyl ether	DY8694 on request
dayangchem	1,2-bis-(2,3-Epoxypropoxy)butane	
atomax	1,4-Butanediol diglycidyl ether	semi-bulk bulk
matrixswitzerland	1,4-Butanediol diglycidyl ether	
AcrosOrganics	1,4-Butanediol diglycidyl ether 50-60%, tech. Infrared 3D model Hazard Risk Safety MSDS	154310025 2.5 KG 154310025 2.5 KG 154310250 25 GR 154310250 25 GR 154311000 100 GR 154311000 100 GR 154315000 500 GR 154315000 500 GR
dehayer	1,4-Butanediol diglycidyl ether	on request
leputech	1,4-Butanediol diglycidyl ether	on request
jschem	1,4-Butanediol diglycidyl ether/Tetramethylene glycol diglycidyl ether, 99+%	1-500kg
intlab	1,4-BUTANEDIOL DIGLYCIDYL ETHER, 96%	10G 50G
chemos	1,4-Butanediol diglycidylether	on request
chemsamir	1,4-BUTANEDIOL DIGLYCIDYL ETHER	10 GM
abcr	1,4-Butanediol diglycidyl ether	100g 250g
abcr	1,4-Butanediol diglycidyl ether; 96%	10g 50g
tcieurope	1,4-Butanediol Diglycidyl Ether, 90.0%	80964-0025 25ML B0964-0250 250ML
gs-chem	1,4-Butanedioldiglycidylether, 98,0%	
ppmpolimer	1,4-Butanediol diglycidyl ether	200 kg-
carbonesci	1,4-Butanedioldiglycidylether, 98.0%	

trylead-chem	1,4-butanediol diglycidyl ether	on request
advtechind	1,4-Butanediol diglycidyl ether	on request

^

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3,4-epoxycyclohexanecarboxylate

3,4-Epoxycyclohexylmethyl 3,4-

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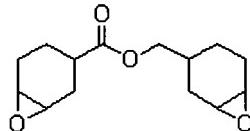
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Identification

Name 3,4-Epoxycyclohexylmethyl 3,4-epoxycyclohexanecarboxylate

Synonyms 7-Oxabicyclo[4.1.0]hept-3-ylmethyl 7-oxabicyclo[4.1.0]heptane-3-carboxylate

Molecular Structure



Molecular Formula C₁₄H₂₀O₄

Molecular Weight 252.31

CAS Registry Number 2386-87-0

EINECS 219-207-4

Properties

Density 1.17

Melting point -37 °C

Refractive index 1.498

Flash point 245 °F

Safety Data

Hazard Symbols



Xn [Details](#)

Risk Codes R43 [Details](#)

Safety Description S36/37 [Details](#)

List of Suppliers

-  [Hainan Zhongxin Chemical Co., Ltd.](#) China
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Market Analysis Reports

[List of Reports Available for 3,4-Epoxycyclohexylmethyl 3,4-epoxycyclohexanecarboxylate](#)

(9b,11b,16a)-9,11-Epoxy-17,21-dihydroxy-16-methyl-pregna-1,4-diene-3,20-dione 9b,11b-Epoxy-17,21-dihydroxypregna-1,4-diene-3,20-dione 21-acetate 1,2-Epoxydodecane 1,2-Epoxy-5-hexene (9b,11b,16a)-9,11-Epoxy-21-hydroxy-16-methylpregna-1,4-diene-3,20-dione 1,2-Epoxyoctadecane 16,17-Epoxypregnolone 16,17-Epoxypregnolone acetate 16a,17a-Epoxyprogesterone 4-Epoxypropanoxygenbazole 2,3-Epoxypropyltrimethylammonium chloride 2a,3a-Epoxy-16b-(1-pyrrolidinyl)-5a-androstan-17b-ol 3,4-Epoxytetrahydrofuran 1,2-Epoxy-4-vinylcyclohexane EPPS Eprazinone Eprazinone dihydrochloride Eprinomectin Eristeride Eprodisate Erosartan mesylate Eprotirome EPT Eptaplatin Eptazocine hydrobromide Eptifibatide Eptifibatide Equol Eradicane Eradicane E Erdosteine Erdosteine Ergonovine maleate Ergosterol L-(+)-Ergothioneine Eriochrome Black T Eriocitrin Eriodictyol Erioglaucine disodium salt Erlitoran Erlotinib Erlotinib hydrochloride Ertapenem Erucic acid Erucylamide Erythritol Erythrodiol Erythromycin

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Bis(3,4-epoxycyclohexylmethyl) adipate

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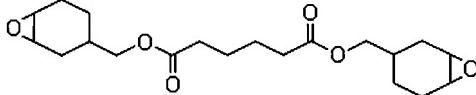
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Identification

Name Bis(3,4-epoxycyclohexylmethyl) adipate

Molecular Structure



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Molecular Formula C₂₀H₃₀O₆

Molecular Weight 366.45

CAS Registry Number 3130-19-6

EINECS 221-518-5

Dimethyl Phthalate

Dimethyl Phthalate
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 Aceto 516-627-6000
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Properties

Density 1.149

Flash point 113 °C

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Safety Data



Xn Details

Risk Codes R22;R36 Details

Safety Description S26 Details

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[The Complete List of Suppliers for Bis\(3,4-epoxycyclohexylmethyl\) adipate](#)

Market Analysis Reports

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(R)-(+)-2,2'-Bis[di(3,5-xylyl)phosphino]-1,1'-binaphthyl Bis(dodecylcyclopentadienyl)zirconium dichloride Bis(4-dodecylphenyl)iodonium hexafluorantimonate 2,4-Bis(dodecylthiomethyl)-6-methylphenol 2,2-Bis[3-(dodecylthio)-1-oxopropoxy]methylpropane-1,3-diyli bis[3-(dodecylthio)propionate] Bis(dodecyltrimethylammonium) sulfate 1,4-Bis(2,3-epoxypropoxy)methylcyclohexane 4,4'-Bis(2,3-epoxypropoxy)-3',5,5'-tetramethylbiphenyl Bis(2,3-epoxypropyl) cyclohex-4-ene-1,2-dicarboxylate 1,4-Bis(2',3'-epoxypropyl)perfluorobutane 4,4'-Bis(ethoxycarbonyl)-2,2'-bipyridine N,N'-Bis(4-ethoxycarbonylphenyl)-N-benzylformamide 4,4'-Bis(9-ethyl-3-carbazovinylene)-1,1'-biphenyl Bis(ethylcyclopentadienyl)hafnium(V) dichloride Bis(ethylcyclopentadienyl)titanium dichloride Bis(ethylcyclopentadienyl)fumsten(IV) dihydride Bis(ethylcyclopentadienyl)zirconium dichloride Bis(ethylenediamine)palladium(II) chloride Bis(ethylenediamine)platinum(II) chloride Bis(2-ethylhexyl) adipate Bis(2-ethylhexyl)amine Bis(2-ethylhexyl)maleate Bis(2-ethylhexyl)phosphate Bis(1-ethyl-3-methylcyclopentadienyl)zirconium dichloride Bis(1-ethyl-2-methylcyclopentadienyl)zirconium dichloride Bis(5-ethyl-2-methyl-1,3,2-dioxaphosphorinan-5-yl)methyl methyl phosphonate P,P'-dioxide N,N'-Bis(9H-Fluoren-9-ylmethoxy)carbonyl-L-Lysine pentafluorophenyl ester N,N'-Bis(9-fluorenylmethoxycarbonyl)-L-histidine 4,4-Bis(4-fluorophenyl)butyric acid N,N'-Bis-Fmoc-L-lysine 1,3-Bis(glycidyloxy)benzene Bis(hexamethylene)triaminepenpa (methyleneephosphonic acid) Bis(hexamethyleneetriaminepenpa(methyleneephosphonic acid)) Bis(hexylene glycolato)diboron 4,4'-Bis[(1E)-2-[4-(hexyloxy)phenyl]ethenyl]-2,2'-bipyridine Bis(10-hydroxybenzothiophenolato)beryllium 1,3-Bis(4-hydroxybutyl)tetramethylsiloxane 1,4-Bis(hydroxymethylsilyl)benzene 1,3-Bis(2-hydroxyethyl)benzene 1,4-Bis(2-hydroxyethoxy)-2-butene 1,4-Bis(2-hydroxyethyl)aminoanthraquinone 4-[N,N-Bis(2-hydroxyethyl)amino]benzaldehyde N,N-Bis(2-hydroxyethyl)-2-

aminoethanesulfonic acid N,N-Bis(2-hydroxyethyl)-2-aminoethanesulfonic acid sodium salt 3-[N,N-Bis(2-hydroxyethyl)amino]-2-hydroxy-1-propanesulfonic acid 3-[N,N-Bis(hydroxyethyl)amino]-2-hydroxypropanesulphonic acid sodium salt Bis-1,4-(2-hydroxyethylamino)-2-nitrobenzene 2-[Bis(2-hydroxyethyl)amino]-5-nitrophenol N-(3-Bis(2-hydroxyethyl)amino)phenyl)acetamide

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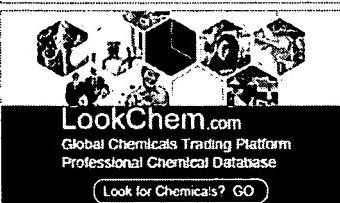
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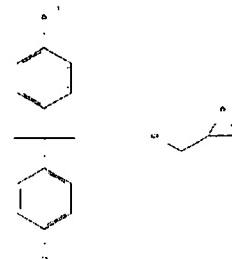
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<input type="checkbox"/>	M-Chemicals	Introduction: M-chemicals international trading (shanghai) limited is a Korean invested trading company registered in Shanghai Waigaoqiao free trade zone, which mainly deal with international trades of petrochemicals. M-chemicals head office established in 1996, locate...	25068-38-6		Inquire
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Detail of 25068-38-6**Molecular Structure:**

Name:4,4'-ISOPROPYLIDENEDIPHENOL, POLYMER with 1-CHLORO-2,3-EPOXYPROPANE

CAS Number:25068-38-6**Molecular****Formula:** $C_{60}H_{64}O_8C_{12}H_{20}Cl_4O_4$ **Molecular Weight:**1283.36**MSDS:**[View](#)

Properties:Clear liquid. D: 1.13, Flash p: 173° F. Insol in water.

Other Products:

3,5-Pyridinedicarboxylic acid, 1,4-dihydro-2,6-dimethyl-4-(3-nitrophenyl)-, cyclopropylmethyl methyl ester(86781-07-9)

Dimethyl diphenylsilane(778-24-5)

anhydride.:(5663-57-0)

1H-Purine-2,6-dione, 3,7-dihydro-8-(2-(2-bromo-4,5-dimethoxyphenyl)ethenyl)-1,3-dipropyl-7-methyl-, (E)-(151539-53-6)

1-methoxy-4-(4-phenylphenoxy)benzene(40843-54-7)

4-(chloromethyl)-5-[(4-(chloromethyl)-5-hydroxy-6-methyl-pyridin-3-yl)methyl]disulfamethyl-2-methyl-pyridin-3-ol dihydrochloride(73840-49-0)

p-XYLDINE(95-78-3)

p-HYDROXY- α -(METHYLAMINO)METHYL-BENZYL ALCOHOL(94-07-5)

1-Palmitoyl-2-acetylglycerol(99945-82-1)

1,1-(1,2-Ethanediyl)bis(methylimino))bis(3-(4-methoxyphenoxy)-2-propanol), dihydrochloride(50886-73-2)

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